

29. (New) The mounting socket of claim 27, and further comprising:
a second adhesive layer affixed to the second side of the body.

REMARKS

Applicant has considered the Office Action mailed on June 19, 2002, and the references cited therewith. This Response amends claims 1, 9, 11, 12, 18, and 20-22 and adds new claims 25-29, leaving claims 1, 4-7, 9-14, and 17-29 pending in the Application.

Claims 1, 4-5, 7, 18-19, and 20-24 were rejected under 35 USC § 103(a) as being unpatentable over Smith, et al. (U.S. Patent No. 4,620,761) in view of Daglow, et al. (U.S. Patent No. 4,898,173).

The present invention combines two forms of electrical conductor in the same contact so that each form enhances the desirable properties of the other. In the invention, the coil provides compression force, while the conductive polymer in which it is embedded secures it to the via walls and by its volume provides more current capability than the coil alone could provide. The Smith patent teaches springs only. They are secured to the vias by the complicated method of stepping the vias and inserting the tiny spring probe into an equally tiny opening below the via step. Daglow uses a doughnut of conductive polymer around a small part of the periphery of a stepped lumen to provide contact and fluid seal. Smith has no suggestion of including any other form of conductor, and certainly not a polymer. Daglow has no suggestion of including any other form of conductor, and certainly not a spring.

Claim 1 has been amended to make perfectly clear a distinction from both of these references. The coil and the polymer are positioned in the vias so that the polymer is "placed around the coil and filling the via," as shown in Figs. 1-4 and noted on page 5 line 1 of the Application. Smith has no suggestion of a polymer. Daglow has no spring, and his polymer is disposed only around the edges of the lumen, and cannot fill it either longitudinally or radially; to do so would defeat Daglow's purpose.

Independent claim 18 similarly recites that the conductive polymer is "placed around the coil." Claim 20 contains the same recitation as claim 1.

Amended independent claim 21 further distinguishes any combination of Smith and

Daglow. For example, this claim specifies that the vias have "constant width therethrough," as clearly shown in Figs. 1-4 of the Application. Smith is forced to step his vias in order to anchor the springs, whereas present invention need not do that. Because the coil and the conductive polymer are "both extending entirely through the one via," the contact is anchored therein without requiring any further expensive or complex mechanism. Daglow has only a single lumen, not the plurality recited in the claim. His single lumen also stepped, to anchor the polymer doughnuts at the proper places. And Daglow suggests no springs; wires 128 and 130 exert no restoring force whatever.

Independent claim 22 also recites "constant width" for the vias. New claim 25 includes both the constant width and the coil extending "entirely through" the via. Dependent claims 4-7, 19, 23-24, and 26-29 incorporate the recitations of their respective parents claims. As to claim 6, the Stopperan patent adds only an adhesive; it does not make up any of the deficiencies noted for Smith and Daglow.

In addition to claim 6, method claims 9-11 were rejected under 35 USC § 103(a) as being unpatentable over Smith, in view of Daglow, et al. (U.S. Patent No. 4,898,173) and further in view of Stopperan (U.S. Patent No. 5,719,749). Independent claim 9 has been amended to include "constant width" vias and the coil and polymer "extending completely through" the vias, as discussed above. No combination of Smith and Daglow can reach these recitations, and Stopperan, adding only an adhesive, cannot supply the deficiencies of the other two references.

Dependent claim 10 incorporates its parent. Independent claim 11 also recites that the coil and polymer are "extending completely through" the via, and "filling" it as well. Again, Smith suggests no polymer, and filling Daglow's lumen would render it entirely unsuitable for its purpose; probe 30 must extend through an aperture in at least one of the polymer doughnuts 108.

Claims 12-14, and 17 were rejected under 35 USC § 103(a) as being unpatentable over Allen, et al. (U.S. Patent No. 4,705,205) in view of Daglow.

The Allen reference teaches a chip carrier having a number of "preforms" that extend vertically between a chip and a circuit board and are soldered to both. Some but not all of the different preform shapes are held in holes through a retaining member. Allen clearly intends that soldering the terminals holds them in place, and that the retaining member only serves to position

them before they are soldered. In several places, Allen states that the retaining member may be removed or dissolved away after the terminals are soldered. In the present invention, the terminals are held in place with a conductive polymer in a via, a concept that is entirely foreign to Allen.

Amended claim 12 recites through holes having "straight sides and a constant width." Allen's embodiments shown in Figs. 7, 10, and 14A-14D have such holes. However, these embodiments suggest only terminals in the form of solid or braided columns having no spring effect at all. The embodiments of Figs. 11A-B employ solid terminalis, but the through holes do not have straight sides all the way therethrough. Fig. 11C shows a solid column ion a hole that runs through, bu does not have straight sides. Fig. 12 has a solid terminal but no through holes at all. Only Fig. 13 shows a spring, but it appears not to be located in a through hole. The statement in par. 4 of the Office Action that terminals 62 of Fig. 13 are disposed in one of the through holes 39 of Fig. 7 is thus a pure leap of faith that can be prompted only in light of the present invention. Allen's text speaks only of holding the spring preforms "within the retaining member 58" (col. 19 lines 17-18) shown in Fig. 13---*not* within the member shown in Fig. 7. Fig. 13 suggests no through holes at all. Although none might speculate upon a helical hole that follows the curve of the coil 62, but this would destroy the compressibility of the spring. Regardless of Allen's subjective intent as to how this preform might be held, one skilled in the art could take no guidance from Allen's disclosure. Accordingly, Allen does not teach one skilled in the art to place a spring contact in the straight-sided, constant-width through holes of claim 12.

Claim 12 also specifies "solderless" conductive terminals, whereas Allen relies on solder to hold all of his preforms in place.

Further, Allen has not the remotest suggestion of a conductive polymer or of any other means for holding the spring in place in or on his retaining member. To import from another reference any such means is a hindsight reconstruction solely in the light of Applicant's invention, in contravention of 35 U.S.C. 103. Even more remote is the use of the Daglow reference, which has none of the attributes of Applicant's claimed structure except for one isolated element: the use of a conductive polymer as an electrical contact. Daglow, for example,

does not have a "plurality" of holes, but only a single lumen. Daglow's lumen does not have straight sides or a constant width. Daglow has no compressible "coil." Daglow's polymer is not configured for "extending completely through" the via, nor for "filling" the via; to do so would render Daglow's apparatus inoperative.

Dependent claims 13, 14, and 17 incorporate all the recitations of claim 12 and are patentable for the same reasons.

Conclusion

Applicant respectfully urges that all the pending claims distinguish the cited references, and are in condition for allowance. The Examiner is invited to telephone Applicant's attorney at (612) 373-6971 to facilitate prosecution of this Application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

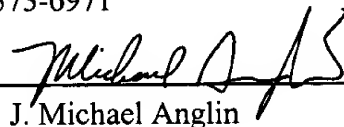
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 19 day of September, 2002.

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